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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,938	03/11/2004	Douglas R. Svenson	046088/267693	4873

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EXAMINER	
WHITE, EVERETT NMN	

ART UNIT	PAPER NUMBER
1623	

MAIL DATE	DELIVERY MODE
03/25/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,938	SVENSON ET AL.	
	Examiner	Art Unit	
	EVERETT WHITE	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 21, 2007 has been entered.

2. The amendment filed December 21, 2007 has been received, entered and carefully considered. The amendment affects the instant application accordingly:

(A) Comments regarding Office Action have been provided drawn to:
(I) 103(a) rejection, rendered moot by new ground of rejection over newly cited US Patent.

3. Claims 1-48 are pending in the case.

4. The text of those sections of Title 35, U. S. Code not included in this action can be found in a prior Office action.

Declaration

5. The Declaration of Dr. Jian Li under 37 C.F.R. 1.132 filed December 21, 2007 was persuasive and the previously rejection of the claims under 35 U.S.C. 103 is withdrawn.

New Ground of Rejection
Claim Rejections - 35 USC § 103

6. Claims 1-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila et al (US Patent No. 6,512,110, already of record) in view of Turner (US Patent No. 4,294,654, newly cited).

Applicants claim a method of producing xylose from a cellulose material containing hemicellulose, comprising: providing a cellulose pulp that is at least partially

bleached and has a hemicellulose content that is predominantly xylan; extracting the hemicellulose from the at least partially bleached pulp into a caustic solution thereby forming a hemicaustic solution; separating the hemicaustic solution into a concentrated hemicellulose solution and a concentrated caustic solution; and, hydrolyzing the hemicellulose from the concentrated hemicellulose solution to produce xylose.

The Heikkila et al patent discloses a process for the production of xylose from a paper-grade, hardwood pulp. More specifically, the Heikkila et al patent disclosed that the invention thereof relates to a process wherein the xylan contained in said pulp is extracted using an aqueous solution of a xylanase enzyme. Optionally, the process also comprises one or two alkali treatments. Heikkila et al discloses that the xylose is obtained by a hydrolysis of the xylan extracted from the pulp. Heikkila et al discloses that the paper-grade hardwood pulp used as raw material is preferably soda pulp or kraft pulp (see column 1, lines 8-16). See column 12, 2nd paragraph for the procedure used to separate the hemicaustic solution into a caustic solution and a hemicellulose solution (i.e., xylan). The Heikkila et al patent teaches that hardwood pulp comprises hemicellulose at 25-35% (see column 1, lines 50 and 51), which embraces a pulp having greater than 4 wt% of hemicellulose as set forth in instant Claim 2. Also see column 2, 2nd paragraph wherein the Heikkila et al patent further teaches a method of removing pulp using bleaching and alkaline extraction. In this paragraph, Heikkila et al discloses that "bleaching" is the removal of color from pulp, primarily the removal of traces of lignin, which remains bound to the fiber after the primary pulping operation. Heikkila et al teaches that bleaching usually involves treatment with oxidizing agents, such as oxygen, peroxide, chlorine, or chlorine dioxide. Classically, the pulp is treated with chlorine, then extracted with caustic, and finally treated with hypochlorite. The alkaline extraction may be with either hot or cold caustic. Heikkila et al teaches that the relative merits of extraction with cold, versus hot, caustic are discussed at length by M. Weyman in The Bleaching of Pulp, W. Howard Rapson, editor, TAPPI Monograph Series No. 27 (1963), Technical Association of the Pulp and Paper Industry, New York, N.Y., Chapter 5, pp. 67-103. Weyman concludes that cold caustic extraction is the superior method for xylan removal from pulp. Other procedures disclosed in the

Heikkila et al patent that can be used to recover xylan include filtration, centrifugation, or the like (see column 7, 4th paragraph) and nanofiltraion (see column 7, 5th paragraph). It is also noted that the aqueous caustic treatment in the Heikkila et al patent may be performed at a temperature of 50°C (see column 6, line 46), which is within the range of the temperature of the caustic solution set forth in instant Claim 9. Also see the xylan composition set forth in Example 18 of the Heikkila et al patent which comprises a xylose content of 91.4% which embraces the requirement of instant Claim 23 wherein the hemicellulose has a xylose content of greater than 90 wt%.

The instantly claimed method of producing xylose from a cellulose material containing hemicellulose differs from the process for production of xylose in the Heikkila et al patent by claiming that the instant method comprises providing a pre-hydrolyzed cellulose pulp that is at least partially bleached.

However, the Turner patent shows that the use of prehydrolyzed hardwood pulp is known in art. See column 3, 2nd paragraph, wherein prehydrolyzed hardwood pulp is used to prepare lignocellulosic pulps.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the pulp used in the process for the production of xylose from hardwood pulp of the Heikkila et al patent with prehydrolyzed hardwood pulp in view of the recognition in the art, as evidenced by the Turner patent, that prehydrolyzed hardwood pulp allows for greater ease of the raw material for the preparation paper products.

One having ordinary skill in the art would have been motivated to combine the teachings of the Heikkila et al and Turner patents in order to reject the instant claims under 35 U.S.C. 103 since both documents disclose treatment of hardwood pulp materials for industrial applications.

7. Applicant's arguments with respect to Claims 1-48 have been considered but are moot in view of the new ground(s) of rejection.

Summary

8. All the pending claims (1-48) are rejected.

Examiner's Telephone Number, Fax Number, and Other Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is 571-272-0660. The examiner can normally be reached on 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Everett White/
Examiner
Art Unit 1623

/Shaojia Anna Jiang, Ph.D./
Supervisory Patent Examiner, Art Unit 1623